

U. S. DEPARTMENT OF COMMERCE

DANIEL C. ROPER, Secretary

NATIONAL BUREAU OF STANDARDS

LYMAN J. BRIGGS, Director

# MATTRESSES FOR HOSPITALS

## COMMERCIAL STANDARD CS54-35

Effective Date for New Production September 6, 1935



### A RECORDED STANDARD OF THE INDUSTRY

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as American Tentative Standard CS54-35

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PROMULGATION  
of  
COMMERCIAL STANDARD CS54-35  
for  
MATTRESSES FOR HOSPITALS

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On October 5, 1933, at the instance of the American Hospital Association, a general conference of representative manufacturers, distributors, and users of mattresses for hospitals appointed a special committee to adopt a recommended commercial standard for this commodity. The industry later accepted and approved for promulgation by the United States Department of Commerce, through the National Bureau of Standards, the standard as shown herein.

The standard became effective for new production on September 6, 1935.

Promulgation recommended.

I. J. Fairchild,  
*Chief, Division of Trade Standards.*

Promulgated.

Lyman J. Briggs,  
*Director, National Bureau of Standards.*

Promulgation approved.

Daniel C. Roper,  
*Secretary of Commerce.*

# MATTRESSES FOR HOSPITALS

## COMMERCIAL STANDARD CS54-35

### CLASSIFICATION

*Inner-spring mattresses.* (See section I, page 1.)

Type I. All-metal spring construction. (See page 4.)

Class 1. Curled-hair inner-spring mattresses (grades A, B, and C). (See page 5.)

Class 2. Cotton-felt inner-spring mattress. (See page 8.)

Type II. Cloth-pocket (fully-enclosed) spring construction. (See page 5.)

Class 1. Curled-hair inner-spring mattresses (grades A, B, and C). (See page 5.)

Class 2. Cotton-felt inner spring mattress. (See page 8.)

*Curled-hair mattresses.* (See section II, page 9.)

Type III. Hair-filled mattresses (grades A, B, and C). (See page 10.)

## SECTION I.—INNER-SPRING MATTRESSES

### SCOPE

1. Section I covers minimum requirements for inner-spring mattresses with hair or cotton filling for hospital use.

### TYPES, CLASSES, GRADES, AND SIZES

2. Mattresses covered by section I are designated as follows:

(a) Types of inner-spring construction:

Type I. All metal.

Type II. Cloth pocket (fully enclosed).

(b) Classes and grades of filling:

Class 1. Curled hair in three grades <sup>1</sup>—

Grade A. 50 percent horse mane, 50 percent horse-tail hair.

Grade B. 100 percent cattle-tail hair.

Grade C. 100 percent horse-mane hair.

Class 2. Cotton-felt filling in one grade only.

(c) Sizes, over-all nominal:

39 by 77 in. (for 39 by 78 in. bed).

39 by 75 in. (for 39 by 76 in. bed).

36 by 77 in. (for 36 by 78 in. bed).

36 by 75 in. (for 36 by 76 in. bed).

33 by 77 in. (for 33 by 78 in. bed).

33 by 75 in. (for 33 by 76 in. bed).

30 by 39 in. (for 30 by 40 in. bed).

18 by 29 in. (for 18 by 30 in. bed).

<sup>1</sup> Throughout this standard, percentages indicated are based on weight.

GENERAL REQUIREMENTS <sup>2</sup>

3. *Workmanship*.—Workmanship shall be first class in every respect. The inner-spring unit shall produce no noise and shall remain noiseless during the life of the mattress. Mattress shall readily conform to any position of the Gatch type of bed spring without injury to the mattress. Both sides of the mattress shall be so finished that either side may be used with equal comfort. Mattress shall be well finished, clean, and free from defects that materially affect its appearance or that might affect its serviceability. It shall be delivered ready for use.

4. *Materials*.—All materials shall be 100 percent new materials.

(a) *Springs*.

SECTION 1. Springs requiring heat treatment shall be made of high-grade spring wire having a chemical analysis approximately as follows:

Constituent	Percent
Carbon.....	0.61 to 0.65.
Manganese.....	0.90 to 1.30.
Sulphur.....	0.05 maximum.
Phosphorus.....	0.05 maximum.
Silicon.....	0.08 to 0.15.

SECTION 2. Springs not requiring heat treatment shall be made of high-grade oil-tempered spring wire having a chemical analysis approximately as follows:

Constituent	Percent
Carbon.....	0.50 to 0.65.
Manganese.....	0.90 to 1.30.
Sulphur.....	0.05 maximum.
Phosphorus.....	0.05 maximum.
Silicon.....	0.25 maximum.

(b) *Casing of spring unit*.—Each assembled spring unit, whether all-metal or cloth-pocket type, shall be completely incased in pre-shrunk unbleached cotton twill, canvas, or duck, weighing not less than 7.2 oz/yd<sup>2</sup>.

(c) *Ticking or cover*.—High-grade blue and white twill or other suitable weave ticking having not less than 78 warp threads and 62 filling threads per inch and weighing not less than 9 oz/yd<sup>2</sup> (equivalent to 8 oz per linear yd 32 in. wide) shall be used. Breaking strength (grab method) shall be not less than 135 lb warp and 90 lb filling. (In lieu of the foregoing, ticking having an equalized breaking strength not less than 115 lb in both warp and filling may be substituted.)

The ticking on each face or cover shall be made up of not more than two pieces with a longitudinal seam properly matched and

<sup>2</sup> When laboratory testing is required to demonstrate conformity with any requirement, if the method of test is not specified or described, it is assumed that modern, approved test methods will be used. In the settlement of controversy, test methods used and approved by the National Bureau of Standards shall apply.

securely sewn. The stripes of the ticking on the upper and lower faces shall run lengthwise.

(d) *Tufting*.—Each mattress shall be well and securely tufted or tied with high-grade polished cotton twine having a breaking strength (single strand) of not less than 36 lb. In lieu of this, ties may be of tubular tape not less than  $\frac{1}{8}$  in. diameter or single flat tape  $\frac{5}{8}$  in. in width, either of which shall have a breaking strength of not less than 50 lb. A round needle which will not cut the ticking shall be used for all tufting. Tie or tuft holes shall be spaced not less than  $\frac{1}{2}$  in. apart and shall be located so that ties will not contact springs.

Tufts may be of tape, composition buttons, molded rubber, covered corrosion-resisting metal, or other suitable material. Raw-cotton tufts are not acceptable. For pattern of tufting and minimum number of tufts, see detail requirements.

(e) *Side-stitching twine*.—Twine for stitching side filling to spring units shall be two-ply all-linen twine having a breaking strength of not less than 32 lb.

(f) *Thread and stitching*.—Thread shall be not less than 3-cord and shall have a breaking strength (single strand) of not less than 3 lb. All machine stitching shall run not less than 10 stitches to the inch.

(g) *Edge*.—Unless plain edge is specified, all edges shall be of the roll type, well filled, with rows of stitches not over 2 in. apart, and with two additional rows of side stitching, making what is known as a four-row Imperial Edge.

In lieu of the four-row Imperial Edge, the following prebuilt border, with or without padding, may be furnished at the option of the manufacturer. Outer material of border shall be identical with cover as specified in paragraph 4(c). If padding is used, it shall be in addition to the amount required for top and bottom in tables 1 and 2, and shall be covered on the inside with a lining of same material as casing of inner-spring unit, specified in paragraph 4(b). If no padding is used, the border shall consist of two thicknesses of ticking identical with that specified in paragraph 4(c) for cover, between which four to six continuous manila or cotton ropes  $\frac{1}{4}$  in. in diameter shall be sewn.

(h) *Corners*.—Unless otherwise specified, corners shall be round and cut on a 4- to 5-in. radius.

(i) *Ventilators*.—Circular ventilating screens of corrosion-resisting metal shall be provided, the combined area of which shall be equivalent to twelve  $\frac{7}{8}$ -in. diameter screens for the 36- by 77-in. size and a proportional number (based on area of mattress) for other sizes. Ventilators shall pass through all border material in such manner as to provide a clear air passage into the spring section.

(j) *Lifting straps*.—Two lifting straps of double-thickness ticking, with turned-in sewed edges, not less than  $\frac{1}{2}$  in. wide shall be securely attached in a vertical position to each side of mattress border at the top and bottom seams, located about 36 in. apart and equidistant from the ends. Straps will not be required on mattresses 60 in. or less in length. When longitudinal lifting straps are specified in lieu of vertical, they shall be furnished only on prebuilt borders or when other adequate reinforcement is provided.

(k) *Tags*.—Tags marked to conform to the legal requirements of the State in which the mattress was manufactured and/or is to be sold shall be sewn on each mattress.

## DETAIL REQUIREMENTS

## SPRING UNITS (TYPES I AND II)

5. After having been formed, springs described in paragraph 4(a) (sec. 1) shall be heat treated so that they will not decrease in height more than  $\frac{1}{8}$  in. after having been completely compressed not less than 20 times. Springs described in paragraph 4(a) (sec. 2) do not require heat treatment.

6. All springs that are used individually, or all-metal constructions after being assembled, shall be coated with baked-on enamel or other rust-resisting material.

7. *Resiliency of spring units.*—The assembled spring unit (without filling) shall be of such resiliency that a weight of 44 lb/ft<sup>2</sup> applied uniformly over the entire surface of the unit will compress all springs to  $2\frac{1}{2} \pm \frac{1}{2}$  in. in height.

## TYPE I. ALL-METAL SPRING CONSTRUCTION

8. All springs shall be of the type known as "Hour Glass" or "Double-Cone Spiral", except the edge row, which, at the option of the manufacturer, may be cylindrical or elliptical type.

9. The diameter of wire used in hour-glass springs shall be not less than 0.072 in. (no. 15 steel-wire gage).

10. Spring units shall be  $4\frac{3}{4} \pm \frac{1}{4}$  in. in height after heat treatment. Each coil shall have 3 or more free turns or convolutions.

11. Individual coils used in the all-metal spring construction shall be of the free-end type or knotted (fastened to itself or the adjacent spring) in a permanent manner. Each coil shall be fastened to each adjacent coil in such a manner as to permit free hinge action perpendicular to the length dimension of the spring, and without lateral slippage. Where cross helical connections are used, the coils shall be assembled by one of the two following methods, depending on (a) if free ends are used, or (b) knotted ends.

(a) When the coils are unknotted, the free ends shall be anchored within the helical connection without the use of any accessory locking device, so as to form a straight hinge section, and alternate coils shall be wound right and left hand.

(b) When the coils are knotted, they shall be offset with a straight section passing through not less than four turns of the helical connection.

12. The number of springs in the all-metal type shall be not less than the minimum given below:

Over-all size of mattress	Minimum number of springs
<i>Inches</i>	
39 by 77-----	171
39 by 75-----	162
36 by 77-----	152
36 by 75-----	144
33 by 77-----	152
33 by 75-----	144
30 by 39-----	63
18 by 29-----	28

## TYPE II. CLOTH-POCKET (FULLY-ENCLOSED) SPRING CONSTRUCTION

13. The spring coils for the cloth-pocket-type spring construction shall be approximately cylindrical in shape with both ends turned in. Springs shall be not less than 4 in. in height when confined in the pockets. Minimum number of turns or convolutions shall be  $4\frac{1}{2}$ , not including end or bearing convolutions.

14. *Cloth pocket*.—Spring coils shall be fully enclosed in individual cloth pockets. The fabric used in the construction of these pockets shall be preshrunk, weighing not less than 7.2 oz/yd<sup>2</sup> as specified in paragraph 4(b).

15. The number of springs in the cloth-pocket type shall be not less than the minimum given below.

Over-all size of mattress	Minimum number of springs
<i>Inches</i>	
39 by 77-----	608
39 by 75-----	589
36 by 77-----	576
36 by 75-----	558
33 by 77-----	544
33 by 75-----	527
30 by 39-----	240
18 by 29-----	108

16. Spring coils, after being enclosed in cloth pockets, and laid up in mattress formation, shall be laced into position with twine passing through not less than five rows of cloth pockets, both top and bottom, and knotted securely at the ends. The twine used shall have a breaking strength of not less than 32 lb.

## CLASS 1. CURLED-HAIR INNER-SPRING MATTRESSES

17. *Cleanliness*.—All hair used for filling or upholstering shall meet the following test to determine cleanliness, sterilization, and freedom from offensive odors. This requirement shall be fulfilled to the entire satisfaction of the hospital authorities:

Four ounces of hair are immersed in two liters (roughly two quarts) of water. (The hands of the operator are thoroughly cleaned with a sterilizing wash, before each individual lot of hair is so treated.) After standing in this water bath for 2 hours and becoming thoroughly soaked, the mass is agitated the same as for ordinary cloth washing, until all clinging dirt and impurities are separated from the hair. Next, the hair is rinsed free from water by squeezing with the hands. The remaining hair is screened off from the water, using a 14-mesh screen. Note whether the resulting solution is cloudy, dirty, or clear. The solution should be clear to meet the requirements of the specification for cleanliness.

Allow the solution to stand not less than 72 hours, at room temperature, in open containers. (*Caution*.—If containers are sealed, there is danger of bursting of the containers due to generated gases.) Examine for evidence of offensive odors or decomposition. The solu-

tion shall be free of offensive odors to meet the requirements of the specification.

18. *Horse hair*.—Shall be new 100 percent horse hair, properly cleaned and curled. It shall be of natural color, black predominating. (Dyed hair is not acceptable.) It shall be odorless, and free of epidermis and all foreign matter, including hair from other animals and from parts of the horse other than the mane and tail.

(a) *Horse mane hair*.—Not more than 17 percent shall be under 2 in. in length, not more than 67 percent shall be under 5 in. in length. (Not less than 33 percent shall be 5 in. or over in length.)

(b) *Horse tail hair*.—Not more than 10 percent shall be under 2 in. in length, not more than 30 percent shall be under 6 in. in length, not more than 90 percent shall be under 10 in. in length. (Not less than 10 percent shall be 10 in. or over in length.)

19. *Cattle tail hair*.—Shall be new 100 percent cattle tail hair of natural glassy white color or dyed black, free of dust, vegetable fiber, scaly matter, or other foreign substance, and be properly curled. It shall be free of hair from other animals and from parts of cattle other than the tail. If dyed, paraphenylenediamine, aminophenol, or other dyes of the type classified by the British Colour Index as no. 875, shall not be used. Dye shall not discolor the hands in ordinary handling of the hair. Not more than 10 percent shall be under 2 in. in length, not more than 50 percent shall be under 5 in. in length, not more than 90 percent shall be under 9 in. in length. (Not less than 10 percent shall be 9 in. or over in length.)

20. *Fastness of color*.—The color of all hair used shall be fast when tested according to the following methods:

(a) *Fastness to crocking*.—The hair to be tested is rubbed on a white unsized piece of cotton-worsted union cloth. A sample of hair sufficient to cover the end of the finger is placed over the index finger and, applying considerable pressure, the finger is passed 10 times over a length of 4 in. on the white cloth. A similar test is made on cloth moistened with water. There shall be no appreciable staining of either the wet or dry cloth.

(b) *Fastness to perspiration*.—Two solutions are required as follows:

1. Acid Solution

10 g of sodium chloride.  
1 g of lactic acid, U.S.P. 85 percent.  
1 g of disodium orthophosphate, anhydrous.  
Make up to 1 liter with water.

2. Alkaline Solution

10 g of sodium chloride.  
4 g of ammonium carbonate, U.S.P.  
1 g of disodium orthophosphate, anhydrous.  
Make up to 1 liter with water.

Two specimens of the colored hair and two pieces of undyed cotton-worsted union cloth measuring 2 by 4 in. are required.

A specimen of hair and a piece of the undyed cloth are thoroughly wet with the acid solution, rolled with the cloth on the outside, and inserted in a glass tube, one end of which is closed, leaving one-third of the roll projecting. The tube is about 15 by 150 mm in size. The other specimen and cloth are treated similarly using the alkaline-test solution. Each tube is then placed in a glass desiccator about

4 in. in diameter, in the bottom of which is placed about 300 ml of a 70 percent aqueous solution of sulphuric acid. The specimens should dry in about 48 hours. They are then ready for examination. No appreciable stain shall be visible on either white cloth.

(The above methods of test are based on the standard methods of the American Association of Textile Chemists and Colorists.)

21. *Moisture*.—The weights of hair shown in table 1 are based on a normal moisture content of 10 percent. If the hair used in mattress construction contains more than this amount of moisture it shall be dried before weighing and filling, or a sufficient excess of hair shall be used to compensate for the weight of the excess moisture.

22. Curled hair shall conform to one of the following grades, as required in the invitation for bids:

Grade A. 50 percent horse-mane, 50-percent horse-tail hair.

Grade B. 100 percent cattle-tail hair.

Grade C. 100 percent horse-mane hair.

23. *Filling*.—The assembled springs, after being incased, shall be completely covered (top and bottom) with the grade of hair specified, which shall be evenly distributed. This is known as the primary filling. Additional hair of the same grade, about 15 percent of total amount, shall be well and evenly distributed over the middle one-third area of both top and bottom, extending over the full width of the mattress. This is known as the crown filling. The total amount of hair used per mattress shall be not less than that given in table 1, except as noted in paragraph 2 (g).

24. *Sizes*.—Unless otherwise specified, the over-all sizes of mattresses shall be as given in table 1, with a plus or minus tolerance of  $\frac{1}{2}$  in., except that minus tolerances will not be allowed on both dimensions for the same mattress.

25. *Tufts or ties*.—The minimum number of tufts or ties is given in table 1, which shall be arranged in a diamond pattern.

TABLE 1.—*Hair-filled inner-spring mattresses*

[Types I and II, class 1]

Over-all size of mattress	Grade of hair	Minimum number of ties	Minimum net weight of hair
			<i>Pounds</i>
39 by 77 inches.....	{ A and B.....	35	16
	{ C.....	35	18
39 by 75 inches.....	{ A and B.....	30	16
	{ C.....	30	18
36 by 77 inches.....	{ A and B.....	28	15
	{ C.....	28	17
36 by 75 inches.....	{ A and B.....	24	14.5
	{ C.....	24	16.5
33 by 77 inches.....	{ A and B.....	21	14
	{ C.....	21	16
33 by 75 inches.....	{ A and B.....	18	13
	{ C.....	18	15
30 by 39 inches.....	{ A and B.....	9	6
	{ C.....	9	7
18 by 29 inches.....	{ A and B.....	6	3
	{ C.....	6	3

## CLASS 2. COTTON- FELT INNER-SPRING MATTRESS

26. *Filling.*—The assembled springs after being incased shall be completely covered (top and bottom) with cotton felt equal to a felt made from a mixture, in equal parts (1) of cotton of not less than  $\frac{3}{8}$ -in. staple nor lower than middling grade, with (2) U. S. grade no. 2 high cotton linters. (See U. S. Dept. of Agriculture Service and Regulatory Announcement no. 125.) Filling shall be felted by garnett machine and evenly distributed. This is known as the primary filling. Additional felt of the same kind and grade, about 15 percent of the total amount, shall be well and evenly distributed over the middle one-third of both top and bottom, extended over the full width of the mattress. This is known as the crown filling. The total amount of felt per mattress shall be not less than that given in table 2, except as noted in paragraph 2 (g).

(a) Cotton felt shall be examined under an ultraviolet light in order to determine the absence of second-hand linters. The filter used in the light shall be such that new linters of acceptable grade will show a light violet fluorescence readily distinguishable from the fluorescence of used cotton. If the material under inspection has been oiled, specimens shall be washed with carbon disulphide prior to examination. (*Caution.*—Carbon disulphide is highly inflammable and poisonous.)

27. *Sizes.*—Unless otherwise specified, the over-all sizes of mattresses shall be as given in table 2, with a plus or minus tolerance of  $\frac{1}{2}$  in., except that minus tolerances will not be allowed on both dimensions for the same mattress.

28. *Tufts or ties.*—Cotton-felt mattresses shall have not less than the minimum number of tufts or ties given in table 2, which shall be arranged in either a biscuit or a diamond pattern.

29. *Packing.*—This specification contemplates that mattresses normally will be shipped by closed truck, unmixed with other freight, and protected from injury, direct from bidder's plant or warehouse to the purchaser. For such method of shipment, cartons will not be required except when specified. Mattresses shipped by l. c. l. freight, express, or by truck in mixed cargo shall be packed in fiberboard or cardboard cartons.

30. *Certification and labeling.*—For a suggested form of certification of conformance to this commercial standard see page 13.

TABLE 2.—Cotton-felt inner-spring mattresses

(Types I and II, class 2)

Over-all size of mattress	Minimum number of ties	Minimum net weight of cotton felt
		<i>Pounds</i>
39 by 77 inches.....	35	22
39 by 75 inches.....	30	21.5
36 by 77 inches.....	28	20
36 by 75 inches.....	24	19.5
33 by 77 inches.....	21	18.5
33 by 75 inches.....	18	18
30 by 39 inches.....	9	11
18 by 29 inches.....	6	6

## SECTION II.—CURLED-HAIR MATTRESSES

### SCOPE

31. Section II covers minimum requirements for hair-filled mattresses for hospitals.

### TYPE, GRADES, AND SIZES

32. Mattresses covered by section II are designated as follows:

(a) Type III, hair filled (no inner springs) in one class only.

(b) Grades of hair filling.<sup>3</sup>

Grade A. 50 percent horse mane, 50 percent horse tail hair.

Grade B. 100 percent cattle tail hair.

Grade C. 100 percent horse mane hair.

(c) Sizes, over-all nominal:

39 by 76 by 5 in. (for 39 by 78 in. bed).

39 by 74 by 5 in. (for 39 by 76 in. bed).

36 by 76 by 5 in. (for 36 by 78 in. bed).

36 by 74 by 5 in. (for 36 by 76 in. bed).

33 by 76 by 5 in. (for 33 by 78 in. bed).

33 by 74 by 5 in. (for 33 by 76 in. bed).

30 by 39 by 4 in. (for 30 by 40 in. bed).

18 by 29 by 4 in. (for 18 by 30 in. bed).

### GENERAL REQUIREMENTS<sup>4</sup>

33. *Workmanship*.—Workmanship shall be first class in every respect. Mattress shall readily conform to any position of the Gatch type of bed spring without injury to the mattress. Both sides of mattress shall be so finished that either side may be used with equal comfort. Mattress shall be well finished, clean, and free from defects that materially affect its appearance or that might affect its serviceability. It shall be delivered ready for use.

34. *Materials*.—All materials shall be 100 percent new materials.

(a) *Ticking or cover*.—High-grade blue and white twill or other suitable weave ticking having not less than 78 warp threads and 62 filling threads per inch and weighing not less than 9 oz/yd<sup>2</sup> (equivalent to 8 oz per linear yd 32 in. wide) shall be used. Breaking strength (grab method) shall be not less than 135 lb warp, 90 lb filling. (In lieu of the foregoing, ticking having an equalized breaking strength of not less than 115 lb in both warp and filling may be substituted.)

The ticking on each face or cover shall be made up of not more than two pieces with a longitudinal seam properly matched and securely sewn. The stripes of the ticking on the upper and lower faces shall run lengthwise.

<sup>3</sup> Throughout this standard, percentages indicated are based on weight.

<sup>4</sup> When laboratory testing is required to demonstrate conformity with any requirement, if the method of test is not specified or described, it is assumed that modern, approved test methods will be used. In the settlement of controversy, test methods used and approved by the National Bureau of Standards shall apply.

(b) *Tufting*.—Each mattress shall be well and securely tufted or tied with high-grade polished cotton twine having a breaking strength (single strand) of not less than 36 lb. In lieu of this, ties may be of tubular tape of not less than  $\frac{1}{8}$  inch diameter or single flat tape  $\frac{5}{8}$  in. in width, either of which shall have a breaking strength of not less than 50 lb. A round needle which will not cut the ticking shall be used for all tufting. Tie or tuft holes shall be spaced not less than  $\frac{1}{2}$  in. apart.

Tufts may be of tape, composition buttons, molded rubber, covered corrosion-resisting metal, or other suitable material. Raw cotton tufts are not acceptable. For pattern of tufting and minimum number of tufts see detail requirements.

(c) *Thread and stitching*.—Thread shall be not less than 3-cord and shall have a breaking strength (single strand) of not less than 3 lb. All machine stitching shall run not less than 10 stitches to the inch.

(d) *Edge*.—Unless plain edge is specified, all edges shall be of the roll type, well filled, with rows of stitches not over 2 in. apart, and with two additional rows of side stitching, making what is known as a four-row Imperial Edge.

(e) *Corners*.—Unless otherwise specified, corners shall be round and cut on a 4- or 5-in. radius.

(f) *Lifting straps*.—Two lifting straps of double-thickness ticking, with turned-in sewed edges, not less than  $\frac{1}{2}$  in. wide, shall be securely attached in a vertical position to each side of the mattress border at the top and bottom seams, located about 36 in. apart and equidistant from the ends. Straps will not be required on mattresses 60 in. or less in length. When longitudinal lifting straps are specified in lieu of vertical, they shall be furnished only on prebuilt borders or when other adequate reinforcement is provided.

(g) *Tags*.—Tags marked to conform to the legal requirements of the State in which the mattress was manufactured and/or is to be sold shall be sewn on each mattress.

## DETAIL REQUIREMENTS

### TYPE III. HAIR-FILLED MATTRESSES

35. *Cleanliness*.—All hair used for filling or upholstering shall meet the following test to determine cleanliness, sterilization, and freedom from offensive odors. This requirement shall be fulfilled to the entire satisfaction of the hospital authorities.

Four ounces of hair are immersed in two liters (roughly two quarts) of water. (The hands of the operator are thoroughly cleaned with a sterilizing wash before each individual lot of hair is so treated.) After standing in this water bath for 2 hours and becoming thoroughly soaked, the mass is agitated the same as for ordinary cloth washing, until all clinging dirt and impurities are separated from the hair. Next, the hair is rinsed free from water by squeezing with the hands. The remaining hair is screened off from the water, using 14-mesh screen. Note whether the resulting solution is cloudy, dirty, or clear. The solution should be clear to meet the requirements of the specification for cleanliness.

Allow the solution to stand not less than 72 hours, at room temperature, in open containers. (*Caution.*—If containers are sealed there is danger of bursting of the container due to generated gases.) Examine for evidence offensive odors or decomposition. The solution shall be free of offensive odors to meet the requirements of the specification.

36. *Horse hair.*—Shall be new 100-percent horse hair, properly cleaned and curled. It shall be of natural color, black predominating. Dyed hair is not acceptable. It shall be odorless and free of epidermis and all foreign matter, including hair from other animals and from parts of the horse other than mane and tail.

(a) *Horse-mane hair.*—Not more than 17 percent shall be under 2 in. in length, and not more than 67 percent shall be under 5 in. in length. (Not less than 33 percent shall be 5 in. or over in length.)

(b) *Horse-tail hair.*—Not more than 10 percent shall be under 2 in. in length, not more than 30 percent shall be under 6 in. in length, not more than 90 percent shall be under 10 in. in length. (Not less than 10 percent shall be 10 in. or over in length.)

37. *Cattle-tail hair.*—Shall be new, clean, 100-percent cattle-tail hair, of natural glassy white color or dyed black, free of dust, vegetable fiber, scaly matter, or other foreign substance, and be properly curled. It shall be free of hair from other animals and from parts of cattle other than the tail. If dyed, paraphenylenediamine, aminophenol, or other dyes of the type classified by the British Colour Index as no. 875, shall not be used. Dye shall not discolor the hands in ordinary handling of the hair. Not more than 10 percent shall be under 2 in. in length, not more than 50 percent shall be under 5 in. in length, not more than 90 percent shall be under 9 in. in length. (Not less than 10 percent shall be 9 in. or over in length.)

38. *Fastness of color.*—The color of all hair used shall be fast when tested according to the following methods:

(a) *Fastness to crocking.*—The hair to be tested is rubbed on a white unsized piece of cotton-worsted union cloth. A sample of hair sufficient to cover the end of the finger is placed over the index finger and, applying considerable pressure, the finger is passed 10 times over a length of 4 in. on the white cloth. A similar test is made on cloth moistened with water. There shall be no appreciable staining of either the wet or dry cloth.

(b) *Fastness to perspiration.*—Two solutions are required as follows:

1. Acid Solution

10 g of sodium chloride.  
1 g of lactic acid, U.S.P. 85 percent.  
1 g of disodium orthophosphate, anhydrous.  
Make up to 1 liter with water.

2. Alkaline Solution

10 g of sodium chloride.  
4 g of ammonium carbonate, U.S.P.  
1 g of disodium orthophosphate, anhydrous.  
Make up to 1 liter with water.

Two specimens of the colored hair and two pieces of undyed cotton-worsted union cloth measuring 2 by 4 in. are required.

A specimen of hair and a piece of the undyed cloth are thoroughly wet with the acid solution, rolled with the cloth on the outside, and inserted in a glass tube, one end of which is closed, leaving one-third

of the roll projecting. The tube is about 15 by 150 mm in size. The other specimen and cloth are treated similarly using the alkaline test solution. Each tube is then placed in a glass desiccator about 4 in. in diameter, in the bottom of which is placed about 300 ml of a 70-percent aqueous solution of sulphuric acid. The specimens should dry in about 48 hours. They are then ready for examination. No appreciable stain shall be visible on either white cloth.

(The above methods of test are based on the standard methods of the American Association of Textile Chemists and Colorists.)

39. *Moisture*.—The weights of hair shown in table 3 are based on a normal moisture content of 10 percent. If the hair used in mattress construction contains more than this amount of moisture it shall be dried before weighing and filling, or a sufficient excess of hair shall be used to compensate for the weight of the excess moisture.

TABLE 3.—All curled-hair mattresses  
(Type III)

Over-all size of mattress	Grade of hair	Minimum number of ties	Minimum net weight of hair	Minimum total weight of mattress
			Pounds	Pounds
39 by 76 by 5 inches.....	A and B.....	35	29	33.5
	C.....	35	32	37
39 by 74 by 5 inches.....	A and B.....	30	28	32.5
	C.....	30	31	36
36 by 76 by 5 inches.....	A and B.....	28	27	31
	C.....	28	30	34
36 by 75 by 5 inches.....	A and B.....	24	26	30
	C.....	24	29	33
33 by 76 by 5 inches.....	A and B.....	21	25	29
	C.....	21	27	31
33 by 74 by 5 inches.....	A and B.....	18	24	28
	C.....	18	26	30
30 by 39 by 4 inches.....	A and B.....	9	9	11
	C.....	9	11	13
18 by 29 by 4 inches.....	A and B.....	6	5	6
	C.....	6	6	7

40. Hair filling shall conform to one of the following grades, as required in the invitation for bids:

Grade A. 50 percent horse mane hair, 50 percent horse tail hair.

Grade B. 100 percent cattle tail hair.

Grade C. 100 percent horse mane hair.

41. *Filling*.—The mattress shall be filled with the grade of hair specified, which shall be evenly distributed. This is known as the primary filling. Additional hair of the same grade, about 15 percent of the total amount, shall be well and evenly distributed over the middle one-third area of both top and bottom, extended over the full width of the mattress. This is known as the crown filling. The total amount of hair used per mattress shall be not less than that given in table 3.

42. *Weight*.—The total weight of each mattress shall be not less than that given in table 3.

43. *Sizes*.—Unless otherwise specified the over-all sizes of mattresses shall be as given in table 3, with a plus or minus tolerance of  $\frac{1}{2}$  in., except that minus tolerances will not be allowed on both dimensions for the same mattress.

44. *Tufts or ties.*—Hair-filled mattresses shall have not less than the minimum number of tufts or ties given in table 3, which shall be arranged in a diamond pattern.

45. *Packing.*—This specification contemplates that mattresses normally will be shipped by closed truck, unmixed with other freight and protected from injury, direct from bidder's plant or warehouse to the purchaser. For such methods of shipment, cartons will not be required except when specified in invitation for bids. Mattresses shipped by l. c. l. freight, express, or by truck in mixed cargo shall be packed in fiberboard or cardboard cartons.

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#### AMERICAN TENTATIVE STANDARD

This commercial standard was approved as American Tentative Standard CS54-35 by the American Standards Association on November 1, 1935.

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#### CERTIFICATION

It is recommended that mattresses manufactured in accordance with the requirements of this standard shall have a label permanently sewn to the mattress worded as follows:

The ----- Company certifies this Type -----, Class -----, Grade -----, mattress to conform to all requirements of Commercial Standard CS54-55, issued by the U. S. Department of Commerce.

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#### EFFECTIVE DATE

The standard became effective for production on September 6, 1935.

#### STANDING COMMITTEE

The following is the membership of the standing committee, which is to review, prior to circulation for acceptance, proposed revisions to keep the standard abreast of progress. Comment and questions concerning the standard, and suggestions for revision, may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee:

HOWARD E. BISHOP, Robert Packer Hospital, Sayre, Pa.  
JAMES B. FRY, Dept. of Property & Supplies, Harrisburg, Pa.  
C. H. HETT, Gordon Bros., Inc., Philadelphia, Pa.  
A. J. LOMAS, University Hospital, Baltimore, Md.  
BENJAMIN A. POWELL, Foster Bros. Mfg. Co., Washington, D. C.  
B. B. SANDIDGE, Central Dispensary and Emergency Hospital, Washington, D. C.  
JOHN M. SMITH, Hahnemann Hospital, Philadelphia, Pa.  
HOWARD M. TAYLOR, International Bedding Co., Baltimore, Md.  
MATTHEW J. WILSON, Jr., Chas. Karr Co., Willow Grove, Pa.

**HISTORY OF PROJECT**

On October 5, 1933, at the request of the Simplification and Standardization Committee of the American Hospital Association, a joint conference of manufacturers, distributors, and users of mattresses for hospitals and institutions was held at the National Bureau of Standards, to adopt a recommended commercial standard for mattresses for hospitals and institutions. On account of the large amount of detail involved in specifications for mattresses, the conference found it impossible to complete the specification, and therefore appointed a special committee to continue the work of the conference. The personnel of the committee included Benjamin A. Powell, as chairman, John M. Smith, as the representative of the American Hospital Association, and representatives of manufacturing firms producing mattresses and springs, together with representatives of Federal and State purchasing offices. In cooperation with the Simplification and Standardization Committee of the American Hospital Association, this special committee drafted a specification for mattresses for hospitals, which was circulated to the industry for acceptance on June 17, 1935. The committee developed also a recommended commercial standard for mattresses for institutions, which the industry accepted as Commercial Standard CS55-35.

Acceptances from hospitals, manufacturers, and distributors of mattresses, including a number of interested associations, estimated to represent adequate support of the standard, were received and the establishment of the standard was announced September 6, 1935.

## ACCEPTANCE OF COMMERCIAL STANDARD

This sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date -----

Division of Trade Standards,  
National Bureau of Standards,  
Washington, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the commercial standard CS54-35 as our standard of practice in the

Production <sup>1</sup>                      Distribution <sup>1</sup>                      Use <sup>1</sup>  
of mattresses for hospitals.

We will assist in securing its general recognition and use, and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature -----

(Kindly typewrite or print the following lines)

Title -----

Company -----

Street address -----

City and State -----

<sup>1</sup> Please designate which group you represent by drawing lines through the other two. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval, the words "In principle" should be added after the signature.

## TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of the industry. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the industry as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: First, to act as an unbiased coordinator to bring all branches of the industry together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by companies representing a satisfactory majority of production, the success of the project is announced. If, however, in the opinion of the standing committee of the industry or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

## ACCEPTORS

Individuals and organizations listed below have indicated, in writing, acceptance of this specification as their standard of practice in production, distribution, or use, but such endorsement does not signify that they may not find it necessary to deviate from the standard, nor that the producers so listed guarantee all of their products to conform to the requirements of this standard.

## ASSOCIATIONS

American Hospital Association, Simplification and Standardization Committee, Philadelphia, Pa.  
 American Hotel Association, Committee on Standardization, New York, N. Y. (In principle.)  
 American Sanatorium Association, New York, N. Y.  
 Children's Hospital Association, Denver, Colo.  
 Cleveland Hospital Council, The, Cleveland, Ohio.  
 International Grenfell Association, New York, N. Y.  
 Master Bedding Makers of America, Holland, Mich.  
 National Association of Bedding Manufacturers, Chicago, Ill. (In principle.)  
 National Association of Curled Hair Manufacturers, Philadelphia, Pa.  
 National Association of Furniture Manufacturers, Inc., Chicago, Ill. (In principle.)  
 National Retail Furniture Association, Chicago, Ill. (In principle.)  
 Northern Pacific Beneficial Association, St. Paul, Minn.  
 Pittston Hospital Association, Pittston, Pa.  
 Youngstown Hospital Association, The, Youngstown, Ohio.

## FIRMS

Abington Memorial Hospital, Abington, Pa.  
 Abraham & Straus, Inc., Brooklyn, N. Y.  
 Advance Bedding Co., The., LaCrosse, Wis.  
 Akron, The City Hospital of, Akron, Ohio.  
 Akron Mattress Manufacturing Co., Akron, Ohio.  
 Alameda County, Medical Director, Oakland, Calif.  
 Alexian Bros.' Hospital, Chicago, Ill.  
 Alleganey Hospital, Cumberland, Md.  
 Allegheny General Hospital, Pittsburgh, Pa.  
 Allegheny Valley Hospital, Tarentum, Pa.

Allentown General Hospital, Allentown, Pa.  
 Arkansas School for the Blind, Little Rock, Ark. (In principle.)  
 Armour & Co., Curled Hair Division, Chicago, Ill. (In principle.)  
 Associated Clinics and Hospitals, Inc., Minneapolis, Minn.  
 Auburn City Hospital, Auburn, N. Y.  
 B & B Mattress Co., Corry, Pa.  
 Bailey Schmitz Co., Inc., Los Angeles, Calif.  
 Baldwin Community Hospital, Redfield, S. Dak.  
 Balyeat Manufacturing Co., The, Mansfield, Ohio.  
 Bannock Hotel, Pocatello, Idaho.  
 Baptist State Hospital, Little Rock, Ark.  
 Barcalo Manufacturing Co., Buffalo, N. Y.  
 Barker Bros., Inc., Los Angeles, Calif.  
 Barnstable County Sanatorium, Pocatello, Mass.  
 Battle Creek Sanatorium, Battle Creek, Mich.  
 Beekman Street Hospital, New York, N. Y.  
 Berman, M., Mattress Co., Muskegon, Mich.  
 Bethesda Hospital, The, Cincinnati, Ohio.  
 Binghamton City Hospital, Binghamton, N. Y.  
 Bismarck Hospital, Bismarck, N. Dak.  
 Blocksom & Co., Michigan City, Ind.  
 Blodgett Memorial Hospital, Grand Rapids, Mich.  
 Bohnert Co., Inc., The Joseph F., Cincinnati, Ohio.  
 Bonnie Burn Sanatorium, Scotch Plains, N. J.  
 Boone County Hospital, Columbia, Mo.  
 Bowne, Samuel W., Memorial Hospital, Poughkeepsie, N. Y.  
 Bradford Hospital, Bradford, Pa.  
 Bradley & Co., W. W., Delavan, Wis. (In principle.)  
 Brigham, Peter Bent, Hospital, Boston, Mass.  
 Brockton Hospital, Brockton, Mass.  
 Brunswick County Hospital, Southport, N. C.  
 Bryn Mawr Hospital, Bryn Mawr, Pa.  
 Buhl Hospital, The Christian H., Sharon, Pa.

- Butterworth Hospital, Grand Rapids, Mich.  
 California Hospital, The, Los Angeles, Calif.  
 Camden County T. B. Hospital, Grenloch, N. J.  
 Cameron Bedding and Manufacturing Co., Cameron, S. C.  
 Carson Pirie Scott & Co., Chicago, Ill.  
 Central State Hospital, Indianapolis, Ind.  
 Charleston General Hospital, Charleston, W. Va.  
 Chester County Hospital, The, West Chester, Pa.  
 Chicago, The University of, Chicago, Ill.  
 Church Home and Infirmary, The, Baltimore, Md.  
 Clifton Springs Sanitarium, Clifton Springs, N. Y.  
 Cochise County Hospital, Douglas, Ariz.  
 Colorado Mattress Manufacturing Co., Denver, Colo.  
 Colorado, University of, School of Medicine & Hospitals, Denver, Colo.  
 Columbia Feather Co., Chicago, Ill.  
 Cook Hospital Co., Fairmont, W. Va.  
 Cooper Manufacturing Co., Waco, Tex.  
 Davenport Bedding Co., Davenport, Iowa.  
 Dee, Thomas D., Memorial Hospital, Ogden, Utah.  
 Delaware County Hospital, Drexel Hill, Pa.  
 Delaware Hospital, The, Wilmington, Del.  
 Denison Mattress Factory, Denison, Tex.  
 Diamond Mattress Co., Inc., Brooklyn, N. Y.  
 Donaldson Co., L. S., Minneapolis, Minn. (In principle.)  
 Dougherty & Co., H. D., Philadelphia, Pa.  
 Douglas County Hospital, Omaha, Nebr.  
 Eastern Oklahoma Hospital, Vinita, Okla.  
 Edgewood Sanatorium, Marshallton, Del.  
 Essex County Hospital, Cedar Grove, N. J.  
 Fifth Avenue Hospital, The, New York, N. Y.  
 Firland Sanatorium, Richmond Highlands, Wash.  
 Florida Sanitarium and Hospital, Orlando, Fla.  
 Flower Hospital, New York, N. Y.  
 Ford Hospital, Henry, Detroit, Mich.  
 Foster Bros. Manufacturing Co., Utica, N. Y.  
 Fulton Upholstery and Mattress Co., Brooklyn, N. Y.  
 Gallinger Municipal Hospital, Washington, D. C.  
 Galveston State Psychopathic Hospital, Galveston, Tex.  
 Garfield Memorial Hospital, Washington, D. C.  
 Garner Hospital, Anniston, Ala.  
 General Hospital of Everett, Everett, Wash.  
 General Hospital No. 2, Kansas City, Mo.  
 Genesee Hospital, The, Rochester, N. Y.  
 Georgia Street Receiving Hospital, Los Angeles, Calif.  
 Germantown Dispensary and Hospital, Philadelphia, Pa.  
 Good Samaritan Hospital, The, Lebanon, Pa.  
 Gordon Bros., Inc., Philadelphia, Pa.  
 Grandview Hospital, Lacrosse, Wis.  
 Grasslands Hospital, Valhalla, N. Y.  
 Greenville General Hospital, Greenville, S. C.  
 Greenwell Springs Sanatorium, Greenwell Springs, La.  
 Greenwich Hospital, Greenwich, Conn.  
 Hackley Hospital, Muskegon, Mich.  
 Hahnemann Hospital, Philadelphia, Pa.  
 Halle Bros. Co., The, Cleveland, Ohio.  
 Hamilton, County of, Cincinnati, Ohio.  
 Hamilton County Tuberculosis Sanatorium, Cincinnati, Ohio.  
 Harbour Longmire Co., Oklahoma City, Okla.  
 Hard Manufacturing Co., Buffalo, N. Y.  
 Harrisburg Hospital, Harrisburg, Pa.  
 Harrisburg Polyclinic Hospital, Harrisburg, Pa.  
 Hartford Mattress Co., Inc., Hartford, Conn.  
 Hartley, J. M., & Son Co., Fairmont, W. Va.  
 Hatch & Reutlinger, New York, N. Y. (In principle.)  
 Hazleton State Hospital, Hazleton, Pa.  
 Hearing Hospital, Duluth, Minn.  
 Highland Park General Hospital, Highland Park, Mich.  
 Holy Family Hospital, Manitowoc, Wis.  
 Holyoke Hospital, Holyoke, Mass.  
 Homoeopathic Hospital, Pittsburgh, Pa.  
 Homoeopathic Medical and Surgical Hospital, Reading, Pa.  
 Hopper, C. T., Furniture Co., Sioux City, Iowa.  
 Horton, Elizabeth A., Memorial Hospital, Inc., Middletown, N. Y.  
 Hospital of the Good Samaritan, Los Angeles, Calif.  
 Hospital of St. Barnabas for Women and Children, Newark, N. J. (In principle.)  
 Hotel Dieu—Sisters Hospital, New Orleans, La.  
 House of Mercy Hospital, Pittsfield, Mass.

- House of Reformation for Colored Boys, Cheltenham, Md.  
 Immanuel Deaconess Institute, The, Omaha, Nebr.  
 Ingham Sanatorium, Lansing, Mich.  
 International Bedding Co., Baltimore, Md.  
 Iowa, State University of, University Hospital, Iowa City, Iowa.  
 Jackson County Sanatorium, Jackson, Mich.  
 Jefferson County Sanatorium, Watertown, N. Y.  
 Jefferson Hospital, Philadelphia, Pa.  
 Jewish Hospital, St. Louis, Mo.  
 Kahn & Levy Furniture Co., Galveston, Tex.  
 Karr Co., Charles, Holland, Mich.  
 Keil Bedding Co., Buffalo, N. Y.  
 Keller's Department Store, Liberty, N. Y.  
 Kenedy Mattress Factory, Kenedy, Tex.  
 King, Inc., W. W., New York, N. Y.  
 Kingston Hospital, Kingston, N. Y.  
 Laconia State School, Laconia, N. H.  
 Lake County Tuberculosis Sanatorium, Crown Point, Ind.  
 Lake Julia Sanatorium, Puposky, Minn.  
 Lake View Sanatorium, Madison, Wis.  
 Lander County Hospital, Austin, Nev. (In principle.)  
 Lansburgh & Bro., Washington, D. C.  
 Lawrence and Memorial Associated Hospitals, New London, Conn.  
 Lee County Hospital, Sanford, N. C.  
 Li-On Bedding Co., Milwaukee, Wis.  
 Lockport City Hospital, Lockport, N. Y.  
 Logan Co., A. J., Pittsburgh, Pa.  
 Long Beach, Calif., Better Business Bureau of, Long Beach, Calif. (In principle.)  
 Loomis Sanatorium, Loomis, N. Y.  
 Lutheran Hospital, Cleveland, Ohio.  
 Lutheran Hospital of Manhattan, New York, N. Y.  
 Malley Co., Edward, New Haven, Conn.  
 Marquardt Co., Milwaukee, Wis.  
 Maryland, Hospital for Women of, Baltimore, Md.  
 McCune-Brooks Hospital, Carthage, Mo.  
 McKeesport Hospital, McKeesport, Pa.  
 McKinley, Wm., Memorial Hospital, Trenton, N. J.  
 McMillan Hospital, Charleston, W. Va.  
 McPherson County Hospital, McPherson, Kans.  
 Mebane-Royall Co., Mebane, N. C.  
 Memorial Hospital, The, Pawtucket, R. I.  
 Memorial Hospital of Cumberland, Cumberland, Md.  
 Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, N. Y.  
 Men's Reformatory, Anamosa, Iowa. (In principle.)  
 Merced General Hospital, Merced, Calif.  
 Mercer Hospital, Trenton, N. J.  
 Mercy Hospital, Wilkes-Barre, Pa.  
 Methodist Hospital, Gary, Ind.  
 Methodist Hospital of Dallas, Dallas, Tex.  
 Miami Valley Hospital, The, Dayton, Ohio.  
 Michigan Bedding Co., Detroit, Mich.  
 Mills Memorial Hospital, San Mateo, Calif.  
 Minneapolis Bedding Co., Minneapolis, Minn.  
 Minneapolis General Hospital, Minneapolis, Minn.  
 Minnesota Soldiers Home, Minneapolis, Minn.  
 Missouri State Sanatorium Mount Vernon, Mo.  
 Morrell Memorial Hospital, Lakeland, Fla.  
 Mount Logan Sanatorium, Chillicothe, Ohio.  
 Mount Sinai Hospital of Cleveland, Cleveland, Ohio.  
 Mount Vernon Hospital, Mount Vernon, N. Y.  
 Mountainside Hospital, Montclair, N. J.  
 Muhlenberg Hospital, Plainfield, N. J.  
 Mutual Mattress and Bedding Co., New York, N. Y.  
 Nanticoke State Hospital, Nanticoke, Pa.  
 Nebraska Orthopedic Hospital, Lincoln, Nebr. (In principle.)  
 Nevada City Sanitarium, Nevada City, Calif. (In principle.)  
 New Charleston Mills, Charleston, S. C. (In principle.)  
 New England Sanitarium and Hospital, Melrose, Mass.  
 New Jersey Orthopaedic Hospital, Orange, N. J.  
 New Jersey State Reformatory, Rahway, N. J.  
 New York State Reconstruction Home, West Haverstraw, N. Y.  
 Newark City Hospital, Newark, N. J.  
 Newton Hospital, Newton Lower Falls, Mass.  
 Niagara Falls Memorial Hospital, The, Niagara Falls, N. Y. (In principle.)  
 Niagara Sanatorium, Lockport, N. Y.  
 North Dakota State Hospital for the Insane, Jamestown, N. Dak.  
 Northern Maine Sanatorium, Presque Isle, Maine.  
 Norton, John M., Memorial Infirmary, Louisville, Ky.

- Norwalk General Hospital, Norwalk, Conn.  
 Oak Park Hospital, Oak Park, Ill.  
 Oakland Park Sanatorium, Thief River Falls, Minn.  
 Ohio Mattress Co., The, Cleveland, Ohio.  
 Ohio Valley General Hospital, Wheeling, W. Va.  
 Olean General Hospital, Olean, N. Y.  
 Olive View Sanatorium, Olive View, Calif.  
 Olwin-Angell, Aberdeen, S. Dak.  
 Orange Memorial Hospital, Orange, N. J.  
 Oregon State Tuberculosis Hospital, Salem, Oreg.  
 Owensboro City Hospital, Owensboro, Ky.  
 Packer Hospital, The Robert, Sayre, Pa.  
 Paterson General Hospital, Paterson, N. J.  
 Pennsylvania Hospital, Philadelphia, Pa.  
 Pennsylvania, University of, Philadelphia, Pa.  
 Pennsylvania, Hospital of the University of, Philadelphia, Pa.  
 Peoples Hospital, New York, N. Y.  
 Peoria Municipal Tuberculosis Sanatorium, Peoria, Ill.  
 Perfection Mattress and Spring Co., Birmingham, Ala.  
 Philadelphia General Hospital, Philadelphia, Pa.  
 Philipsburg State Hospital, Philipsburg, Pa.  
 Pick Co., Inc., Albert, Chicago, Ill.  
 Port Chester Bedding Co., Inc., Port Chester, N. Y.  
 Pottsville Hospital, The, Pottsville, Pa.  
 Pownal State School, Pownal, Maine.  
 (In principle.)  
 Providence Lying In Hospital, Providence, R. I.  
 Quality Mattress Co., Rochester, N. Y.  
 Quincy City Hospital, Quincy, Mass.  
 Quinn Co., Inc., Edward F., New York, N. Y.  
 Rainier Mattress Co., Seattle, Wash.  
 (In principle.)  
 Rockingham Memorial Hospital, Harrisonburg, Va.  
 Rome Co., Inc., The, Rome, N. Y.  
 Roosevelt Hospital, The, New York, N. Y.  
 Sacramento, City Health Department, Emergency Hospital, Sacramento, Calif.  
 Saginaw General Hospital, Saginaw, Mich.  
 St. Agnes Hospital, Fond du Lac, Wis.  
 St. Barnabas Hospital, Minneapolis, Minn.  
 St. Elizabeth Hospital, Danville, Ill.  
 St. Francis Hospital of Santa Barbara, Santa Barbara, Calif.  
 St. James Hospital, Newark, N. J.  
 St. Johns Hospital (Sisters of Mercy), St. Louis, Mo.  
 St. Johns Hospital, Tulsa, Okla.  
 St. Joseph Hospital, Lancaster, Pa.  
 St. Joseph Hospital, Orange, Calif.  
 St. Joseph's Hospital, Lewiston, Idaho.  
 St. Joseph's Hospital, Omaha, Nebr.  
 St. Louis County Hospital, Clayton, Mo.  
 St. Luke's Home and Hospital, Utica, N. Y.  
 St. Luke's Hospital, Bethlehem, Pa.  
 St. Lukes Hospital, Jacksonville, Fla.  
 St. Luke's Hospital, New Bedford, Mass.  
 St. Luke's Hospital, Newburgh, N. Y.  
 St. Luke's Hospital and Nurses' Training School, Boise, Idaho.  
 St. Margaret Memorial Hospital, Pittsburgh, Pa.  
 St. Mary Hospital, Cincinnati, Ohio.  
 St. Mary's Hospital, Minneapolis, Minn.  
 St. Paul Bedding Co., Inc., St. Paul, Minn.  
 San Joaquin General Hospital, French Camp, Calif.  
 San Luis Obispo General Hospital, San Luis Obispo, Calif.  
 Santa Monica Hospital, Inc., Santa Monica, Calif.  
 Schneider, John, & Sons, Inc., Brooklyn, N. Y.  
 Scranton Bedding Co., Scranton, Pa.  
 Scranton Better Business Bureau, Scranton, Pa. (In principle.)  
 Scranton State Hospital, Scranton, Pa.  
 Sealy Mattress Co., Houston, Tex.  
 Seaside and Floating Hospital (St. John's Guild), New York, N. Y.  
 Seton Infirmary, Austin, Tex.  
 Sherman Hospital, Mary, Sullivan, Ind.  
 Slater's, Inc., Paterson, N. J.  
 South View Hospital (Municipal, Contagious), Milwaukee, Wis.  
 Springfield Mattress Co., The, Springfield, Ill.  
 Stanford University Hospitals, San Francisco, Calif.  
 Stearns & Foster Co., The, Cincinnati, Ohio.  
 Steiner Cancer Clinic, Atlanta, Ga.  
 Strawbridge & Clothier, Philadelphia, Pa.  
 Strong Memorial Hospital, Rochester, N. Y.  
 Stuart Circle Hospital Corporation, Richmond, Va.  
 Sumergrade & Sons, Inc., N., New York, N. Y.  
 Summit County Home and Hospital, Munroe Falls, Ohio.  
 Sunny Acres Sanatorium, Warrensville, Ohio.  
 Superior Felt and Bedding Co., Chicago, Ill.

Sutter Hospital of Sacramento, Sacramento, Calif.  
 Sydenham Hospital, New York, N. Y.  
 Syracuse Psychopathic Hospital, Syracuse, N. Y.  
 Tacoma Better Business Bureau, Tacoma, Wash. (In principle.)  
 Texas & Pacific Railway Co., Marshall, Tex.  
 Toledo Hospital, The, Toledo, Ohio.  
 Tompkins County Memorial Hospital, Ithaca, N. Y.  
 Union Hospital, Fall River, Mass.  
 Union Memorial Hospital, Baltimore, Md.  
 Uniontown Hospital, Uniontown, Pa.  
 United Furniture Manufacturers, Wilkes-Barre, Pa.  
 United Hospital, Port Chester, N. Y.  
 United States Bedding Co., Memphis, Tenn.  
 United States Bedding Co., The, St. Paul, Minn.  
 United States Testing Co., Inc., Hoboken, N. Y. (In principle.)  
 University Hospital, Baltimore, Md.  
 Valley Bedding & Furniture Co., Fresno, Calif.  
 Van Sciver Co., J. B., Camden, N. J.  
 Veterans' Home of California, Napa County, Calif.  
 Virginia, State Colony for Epileptics and Feeble Minded, Colony, Va.  
 Virginia Home and Industrial School for Girls, Bon Air, Va.  
 Walsh, W. H., Chicago, Ill.  
 Washington County Hospital, Washington, Iowa.  
 Washington, University of, Seattle, Wash.  
 Waterbury Hospital, Waterbury, Conn.  
 Waterbury Mattress Co., Waterbury, Conn.  
 Way Sagless Spring Co., Minneapolis, Minn.  
 Wegman Co., Inc., William J., Rochester, N. Y.

Wells & Co., Inc., Boston, Mass.  
 Wesson Maternity Hospital, Springfield, Mass.  
 West Baltimore General Hospital, Baltimore, Md. (In principle.)  
 West Union Community Hospital, West Union, Iowa.  
 Western Pennsylvania Hospital, The, Pittsburgh, Pa.  
 Westwood Hospital, Westwood, Calif.  
 White Cross Hospital Assn., The, Columbus, Ohio.  
 Wilkes-Barre General Hospital, Wilkes-Barre, Pa.  
 Willmar State Asylum, Willmar, Minn.  
 Wills Hospital, Philadelphia, Pa.  
 Wilmington General Hospital, Wilmington, Del.  
 Wilson & Co., Philadelphia, Pa.  
 Wilson & Jansen, San Francisco, Calif.  
 Wisconsin Bureau of Purchases, State of, Madison, Wis.  
 Wisconsin Industrial School for Boys, Waukesha, Wis.  
 Witham Memorial Hospital, Lebanon, Ind.  
 Woll & Co., F. P., Frankford, Philadelphia, Pa.  
 Woll, Peter, & Sons Mfg. Co., Philadelphia, Pa.  
 Womans Hospital, Cleveland, Ohio.  
 Woman's Hospital in the State of New York, New York, N. Y.  
 Women's & Children's Hospital, Toledo, Ohio.  
 Worcester, City Hospital, Worcester, Mass.  
 Worcester Hahnemann Hospital, Worcester, Mass.  
 Wyoming State Hospital, Evanston, Wyo.

U. S. GOVERNMENT

District of Columbia, Government of the, Washington, D. C. (In principle.)

## COMMERCIAL STANDARDS

CS no.	Item	CS no.	Item
0-30.	The commercial standards service and its value to business.	32-31.	Cotton cloth for rubber and pyroxylin coating.
1-32.	Clinical thermometers (second edition).	33-32.	Knit underwear (exclusive of rayon).
2-30.	Mopsticks.	34-31.	Bag, case, and strap leather.
3-28.	Stoddard solvent.	35-31.	Plywood.
4-29.	Staple porcelain (all-clay) plumbing fixtures.	36-33.	Fourdrinier wire cloth (second edition).
5-29.	Steel pipe nipples.	37-31.	Steel bone plates and screws.
6-31.	Wrought-iron pipe nipples (second edition).	38-32.	Hospital rubber sheeting.
7-29.	Standard weight malleable iron or steel screwed unions.	39-32.	Wool and part wool blankets.
8-33.	Gage blanks (second edition).	40-32.	Surgeons' rubber gloves.
9-33.	Builders' template hardware (second edition).	41-32.	Surgeons' latex gloves.
10-29.	Brass pipe nipples.	42-35.	Fiber insulating board (second edition).
11-29.	Regain of mercerized cotton yarns.	43-32.	Grading of sulphonated oils.
12-35.	Fuel oils (third edition).	44-32.	Apple wraps.
13-30.	Dress patterns.	45-33.	Douglas fir plywood.
14-31.	Boys' blouses, button-on waists, shirts, and junior shirts.	46-33.	Hosiery lengths.
15-29.	Men's pajamas.	47-34.	Marking of gold-filled and rolled-gold-plate articles other than watch cases.
16-29.	Wall paper.	48-34.	Domestic burners for Pennsylvania anthracite (underfeed type).
17-32.	Diamond core drill fittings (second edition).	49-34.	Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
18-29.	Hickory golf shafts.	50-34.	Binders board for bookbinding and other purposes.
19-32.	Foundry patterns of wood (second edition).	51-35.	Marking articles made of silver in combination with gold.
20-30.	Staple vitreous china plumbing fixtures.	52-35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze and 50-percent mohair plain frieze).
21-34.	Interchangeable ground-glass joints, stopcocks and stoppers (second edition).	53-35.	Colors and finishes for cast stone.
22-30.	Builders' hardware (nontemplate).	54-35.	Mattresses for hospitals.
23-30.	Feldspar.	55-35.	Mattresses for institutions.
24-30.	Standard screw threads.	56-36.	Oak flooring.
25-30.	Special screw threads.	57-36.	Book cloths, buckrams, and impregnated fabrics (for bookbinding purposes except library bindings).
26-30.	Aromatic red cedar closet lining.		
27-30.	Plate glass mirrors.		
28-32.	Cotton fabric tents, tarpaulins, and covers.		
29-31.	Staple seats for water-closet bowls.		
30-31.	Colors for sanitary ware.		
31-35.	Wood shingles (third edition).		

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice in their industry, may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.